**ITM-301 Homework #3 (Chapter 5)**

**Name: Hong Zhang**

**Reviewing the Basics**

1. Who are the two major manufacturers of processors?

A: Inter and AMD.

1. What is the name of the memory cache that is on the same die as the processor?

A: L1 cache.

1. What is the name of the memory cache that is closest to the processor die but is not housed on the die?

A: L2 cache.

1. How many threads can a quad-core processor handle at once?

A: 8 threads.

1. How many pins are on a DDR3 DIMM? DDR2 DIMM?

A: A DDR3 DIMM has 240 pins. A DDR2 DIMM has the same pins, 240 pins.

1. How many pins are on a DDR DIMM? SDRAM DIMM?

A: A DDR DIMM has 184 pins and a SDRAM DIMM has 168 pins.

1. How many notches does a DDR3 DIMM have?

A: A DDR3 DIMM has one offset notch.

1. Which DIMM performs better, a double-sided dual-ranked DIMM or a double-sided single-ranked DIMM?

A: A double-sided single-ranked DIMM performs better because dual ranked do not perform as well as DIMMs where all the memory is addressed at one time.

1. In a memory ad for DIMMs, you notice 64Meg ×72 for one DIMM and 64Meg ×64 for another DIMM. What does the 72 tell you about the first DIMM?

A: 72 is the width of the data path. The data path width for DIMMs is normally 64 bits, but with ECC, the data path is 72. The extra 8 bits are used for error checking. Hence, 72 tells me that the first DIMM supports ECC technology to check error.

1. What type of DIMM supports triple channeling?

A: DDR3 DIMM supports triple channeling.

1. If two bits of a byte are in error when the byte is read from ECC memory, can ECC detect the error? Can it fix the error?

A: EEC can detect the error but it cannot fix the error.

1. What is the most amount of RAM that can be used by a 32-bit installation of Windows 7 Professional?

A: 4GB.

1. You need to find out how much RAM is installed in a system. What command do you enter in the Search box to launch the System Information utility?

A: Msinfo32.

Thinking Critically

1. You need to upgrade memory in a system but you don’t have the motherboard documentation available. You open the case and notice that the board has four DIMM slots; three slots are colored yellow and one slot is black. What type of DIMM does the board likely use? How can you be sure?

A: I can know the type of DIMM through checking the color of DIMM slots. This color coding is used to identify the channel each slot uses. The three yellow slots probably indicate triple channeling, which means the board can use three matching DDR3 DIMMs. To know for sure, remove a DIMM and look for the position of the notch on the DIMM. Both DDR2 DIMMs and DDR3 DIMMs use 240 pins, although their notches are not in the same position.